SECTION 08 80 00

GLAZING

PART 1 - GENERAL

1.01 SUMMARY

A. Provisions of Division 01 apply to this section.

B. Section Includes:

1. Glass and glazing as indicated.

C. Related Sections:

1. Section 08 41 13: Aluminum Framed Storefronts.

2. Section 08 11 13: Hollow Metal Doors and Frames.

3. Section 08 41 13: Aluminum Windows, Doors and Frames.

4. Section 08 71 00: Door Hardware.

1.02 SUBMITTALS

A. Product Data: Submit manufacturer's descriptive literature and installation recommendations for glass, glazing, and accessories.

B. Material Samples: Submit 6-inch square units of each type of glass specified.

1.03 QUALITY ASSURANCE

A. Labeling: Label each piece of glass and glazing and mirrors with manufacturer's name, and the grade or quality of the material. Labels shall be intact before and after installation. Fire-protection-rated glazing shall bear a label or other identification in accordance to CBC 715.4.6.3.

B. Comply with the following as a minimum requirement:

1. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.

2. ASTM C1036 - Standard Specification For Flat Glass.

3. ASTM C1048 - Standard Specification For Heat-Treated Flat Glass —Kind HS, Kind FT Coated and Uncoated Glass.

4. CPSC 16 CFR 1201 - Safety Standards for Architectural Glazing Materials issued by the Consumer Products Safety Commission.

5. GANA - Glazing Manual.

6. Solar Heat Gain Coefficient (SHGC): 0.53 or better required to achieve HPI-CHPs pre-requisite points EE1.0 and EE1.1.

7. U-value: 0.78 or better required.

C. Qualifications of Installer: Minimum 5 years experience installing glass in projects of similar scope and complexity.

1.04 DELIVERY, STORAGE AND HANDLING

A. Deliver glass and glazing materials with manufacturer's labels intact.

B. Do not remove labels until glass has been installed and inspected by Project Inspector.

C. Protect glass from staining, marking, and damage.

D. Putty and glazing compound shall be delivered to the Project site in manufacturer's original unbroken containers labeled to identify contents.

1.05 PROJECT CONDITIONS

A. Perform glazing when ambient temperature is above 40 degrees F.

B. Perform glazing on clean, dry surfaces only.

1.06 WARRANTY

A. Manufacturer shall provide a 10 year material warranty. Manufacturer shall provide a 20 year material warranty for coatings and thermally or acoustically rated insulation units against deterioration in acoustic or thermal rating.

B. Installer shall provide a 3 year labor warranty.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS AND FABRICATORS

A. To maximum extent possible, provide domestically manufactured and fabricated glass, and provide glass from one manufacturer.

B. Types of glass specified or indicated shall be manufactured or fabricated by one of the following:

1. Pilkington LOF (fire rated glazing).

2. PPG Glass Technology.

3. Visteon Float Glass Operations.

4. Viracon.

5. Oldcastle.

2.02 GLASS MATERIALS

A. General: Conform to ASTM C1036, ASTM C1048 and to ANSI Z97.1. Label factory cut panes.

B. Not used.

C. Tempered Glass: Condition A (uncoated surfaces), Type I or II, Class 1, Quality q3 (glazing select), Kind FT (fully tempered glass), match color of clear or tinted glass as applicable; fully thermal tempered, heat strengthening or chemical tempering is not permitted. Perform tempering by horizontal oscillating roller hearth or high speed roller hearth process. Do not permit fabrication processes leaving gripper or tong marks. Handle and size glass according to manufacturer's written instructions.

E. Clear Laminated Glass: 2 layers of 1/8 inch clear float glass with 0.030 inch thick high strength polyvinyl butyral laminating sheet. Edges of laminated glass shall be treated with Ardis 500, or equal, edge protection to prevent contact of laminating sheet with sealants.

F. All exterior facing glass shall be 1" nominal thickness insulating glass as follows:
(a) Outside pane to be 1/4" nominal thickness laminated glass consisting of:
(1) Outer lite of laminated glass assembly: 2.7 mm clear annealed glass
(b) Interlayer of laminated glass assembly: (1) 0.030 PVB interlayer.
(c) (1) Inner lite of laminated glass assembly: 2.7 with Cardinal 366 or approved equal Low E on the #4 surface of the laminated glass assembly, (the #2 surface of the insulated glass assembly).
(d) Argon filled Gap 0.5 minimum
(e) Inner pane to be 3 mm clear (annealed/tempered) glass. Laminator shall be approved by the manufacturer.

2.03 GLASS SETTING MATERIALS

A. Setting Blocks: ASTM C864, channel shape; having 1/4 inch internal depth, Shore A hardness of 80 to 90 Durometer. Blocks shall be a minimum 2 inch long. Block width shall

be approximately 1/16 inch less than the full width of the rabbet. Block thickness shall be at least 3/16 inch, sized for rabbet depth as required.

B. Spacers: ASTM C864, channel shape, with 1/4 inch internal depth, 3/32 inch flanges, web, 1/8 inch thick, one to 3 inches long. Spacers shall provide Shore A hardness of 40 to 50 Durometer.

C. Vinyl Glazing Channels: Profile compatible with framing system and designed to accommodate glass of specified thickness, light gray in color. Provide for dry glazing aluminum frames where indicated or permitted.

D. Glazing Tape: Poly-isobutylene based sealant tape, conforming to AAMA 804.1, with adhesive one side protected by temporary paper cover, Extru-Seal manufactured by Pecora Corp., No. 303 by Protective Treatments, Inc., or equal.

E. Spring Steel Spacers: Galvanized steel wire or strip designed to position glazing in channel or rabbet sash with stops.

F. Glazing Clips: Galvanized steel spring wire designed to hold glass in position in rabbet sash without stops.

G. Glazing Points (Sprigs): Pure zinc stock, thin, flat, triangular or diamond-shaped pieces, 1/4 inch minimum size.

H. Glazing Sealants for Metal Sash: GE Silicones Silglaze II 2800, GE Silicones Silpruf, GE Silicones 1200 Silicone, and Dow Corning 999A. Polybutylene, oleoresinous, asphalt, and oil base sealants are not permitted. Provide sealant of same color as structural silicone sealant unless otherwise required.

I. Glazing Compounds and Sealants for Thermoplastic: Provide silicone, butyl, or polysulfide glazing compound.

PART 3 - EXECUTION

3.01 TOLERANCES

A. Thickness indicated or specified are nominal within standard tolerances. Maximum size of vertical panes shall not exceed following:

Glass Thickness Double Strength:	1/8 inch	3/16 inch	1/4 inch
Maximum Areas in Square Feet:	12	16	20

3.02 INSTALLATION, GENERAL

A. Glazed cabinet doors, windows, transoms, and fixtures, not otherwise noted or indicated, shall be glazed with clear float glass. Room or entrance doors shall be glazed with clear wire glass.

B. Glazing tapes or sealants shall be installed wherever glass contacts metal surfaces. Width of strips shall be as required.

C. Glazing compound shall be neatly and cleanly installed in straight lines, even with inside edge of sash members. Thumb puttying is not permitted.

D. Display Cases and Sliding Glass Doors in Casework: Glass in display cases shall be 1/4 inch thick clear wire glass or float glass as indicated. Edges of glass shall be rounded and polished.

3.03 INSTALLATION OF GLASS

A. Conform to requirements of GANA Glazing Manual.

B. Provide edge blocking to comply with requirements of referenced glazing standard, except where otherwise required by glass unit manufacturer.

C. Provide compressible filler rods or equivalent back-up material to prevent sealant from extruding into glass channel weep systems, from adhering to back surface of joints and to control depth of sealant for optimum performance.

D. Force sealants into glazing channels, in manner to eliminate voids and to ensure complete bond of sealant to glass and channel surfaces.

E. Tool exposed surfaces of sealants to provide for drainage away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel to eliminate dirt and moisture pockets.

F. Where dry glazing of aluminum frame is indicated or permitted, provide vinyl glazing channels installed in accordance with frame manufacturers written recommendations. Do not stretch channels. Miter corners.

G. For tape glazing, furnish tape of thickness to provide approximately 30 percent compression. Cut tape to proper length and install to permanent stops, the entire length of the head and sill first, then to jambs. Butt tape together with no overlap and remove paper backing. Install glass on setting blocks at quarter points and maintain uniform glass edge clearance around entire perimeter of glass. Maintain manufacturer's recommended edge clearance and bite on glass. Install glass firmly into tape with a slight lateral movement to assure proper adhesion. Install tape to removable stop with evenly distributed firmness, smoothing out wrinkles in tape. Secure removable stop in proper position so tape makes

contact with glass as stop is installed, forcing contact with glass and completely sealing joint. Remove excess tape from both sides at slight angle over sight line. Do not undercut.

3.04 PROTECTION AND CLEANING

A. Protect exterior glass from breakage by furnishing crossed streamers attached to framing and away from glass surface. Do not directly install markers to glass surfaces. Remove non-permanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove immediately by method recommended by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less often than once a month, for build-up of dirt, scum, alkali deposits or staining. When examination reveals presence of these forms of residue, remove by method recommended by glass manufacturer. Glazing, which cannot be cleaned to a required condition, shall be deemed defective Work.

D. Remove and replace glass, which is broken, chipped, cracked, abraded, or damaged during construction.

E. Remove protective covering from thermoplastic not more than 4 days before Substantial Completion, and immediately before cleaning. Methods of final cleaning and finishing shall be as prescribed by thermoplastic glazing publications referenced above.

F. Wash glass on both faces not more than 4 days before Substantial Completion. Wash glass by method recommended by glass manufacturer. Do not furnish harsh cleaning agents, caustics, abrasives, or acids for cleaning. Polish glass both sides and leave free of soil, streaks, and labels.

3.05 CLEAN UP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

3.06 PROTECTION

A. Protect the Work of this section until Substantial Completion.

END OF SECTION